CS605-SOFTWARE ENGEINRING-II

ONLY LEC (23 to 45)

Solved *SUBJECTIVE* Final terms papers

Solved by JUNAID MALIK



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Final project CS619

1) SRS
(Software Requirement's Specification)
2) DD
(Design Document)
3) Test phase + viva
4) Viva preparation
5) Final Deliverable

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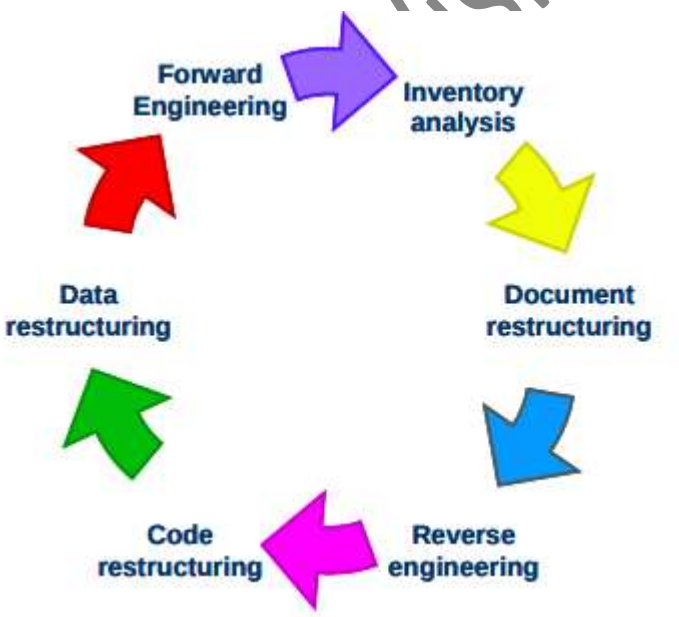
1. Legacy System Assessment

For each legacy system, there are four strategic options:

- ❖ Scrap the system completely: This is the case when system is not making an effective contribution to business processes and business processes have changed significantly and the organization is no longer completely dependent upon the system.
- ❖ Continue maintaining the system: This option is used when system is still required, it is stable, and requirements are not changing frequently
- ❖ Transform the system in some way to improve its maintainability: this option is exercised when system quality has been degraded and regular changes to the system are required.
- ❖ Replace the system with a new system: this path is taken when old system cannot continue in operation and off-the shelf alternative is available or system can be developed at a reasonable cost.

2. **Software Reengineering Process Mode**

Ans:



1. **Requirement attributes**

Ans:

We need to tag requirements with certain attributes in order to manage

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them in an orderly fashion. Attributes
are used to establish a context and background for each requirement. They go beyond the description of intended functionality. They can be used to filter, sort, or query to view selected subset of the requirements. Alist of possible attributes is enumerated as below:

- Requirement ID
- Creation date
- Created by
- Last modified on
- Last modified by
- Version number
- Status
- Origin
- Subsystem
- Product Release
- Priority

3. **Requirement Status**
   The requirement status attribute is one of the most useful ones. It can be used to keep track of different requirements going through different phases. The possible status values are proposed, approved, implemented, verified, and deleted. These are elaborated in the following paragraphs.
   2. **Proposed:**
      The requirement has been requested by a source who has the authority to provide requirements.
   3. **Approved:**
      The requirement has been analyzed, its impact on the rest of the project has been estimated, and it has been allocated to the baseline for a specific build number or product release. The software development group has committed to implement the requirement.
   4. **Implemented:**
      The code that implements the requirement has been designed, written, and unit tested.
   5. **Verified:**

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The implemented requirement has been verified through the selected approach, such as testing or inspection. The requirement has been traced to pertinent test cases. The requirement is now considered complete.

6. **Deleted:**

A planned requirement has been deleted from the baseline. Include an explanation of why and by whom the decision was made to delete the requirement

7. **Tasks of Network**
   - ❖ Concept scoping
   - ❖ Preliminary concept planning
   - ❖ Technology risk assessment
   - ❖ Proof of concept
   - ❖ Concept implementation
   - ❖ Customer reaction to concept
8. **types of reviews**

Ans:

There are many types of reviews. In general, they can be categorized into two main categories namely

- ➢ informal technical reviews.
- ➢ formal technical reviews.

9. **when a system called legacy system**

Ans:

A system is considered to be a legacy system if it has been in operation for many years. A legacy system has many components. These include business processes, business rules, application software, application data,support software, and system hardware.

10. **If SCM is not its proper place, then what are disadvantages?**

Ans:

Software configuration management (SCM) is one of the five KPA required for an organization to be at CMM level 2. That means, according to SEI, effective project management is not possible without having a properSCM function in place. The basic idea behind SCM is to manage and control change. As mentioned by Bernstorff, no matter where youare in the system life cycle, the system will change, and the desire to change it will persist throughout the lifecycle. It is therefore essential that we manage and control it in a fashion that this continuous change does notconvert into chaos.

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11. Fault tree can be used to predict the chain of events?

Ans:

Analysis techniques such as fault tree analysis can be used to predict the chain of events that can cause hazards and the probability that each of these events will occur to create the chain

12. "Message chain" can be a bad smell in the coding justifies it with reason?

Ans:

A client asks an object for another object and then asks that object for another object etc. Bad because client depends on the structure of the navigation

13. CCB stands for what?

Ans:

CCB stands for Change Control Board

14. Write down the guide line to make a review meeting success full?

Ans:

The followings are guide lines to make review meeting successful:

· Avoid drift

- Limit debate and rebuttal
- Enunciate problem areas but don't try to solve all problems
- Take written notes
- Limit the number of participants and insist upon advanced preparation
- Develop a checklist for each product that is likely to be reviewed
- Allocate resources and schedule time for FTRs
- Conduct meaningful training for all reviewers
- Review your early reviews
- Determine what approach works best for you

15. A technical review meeting is attended by the Review leader, the reviewer and the producer. Write the roll ofproducer and the reviewer in the meeting?

Ans:

The producer informs the PM that the WP is ready and the review is needed. Review meeting is attended by thereview leader, all reviewers, and the producer. One of the reviewers takes the roles of recorder. Producer walksthrough the product, explaining the material while other reviewers raise issues based upon their advanced preparation.

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16. Whenever change is required, CCB decide allow to happen or deny. If it is decided that change is necessary, itis needed ECO engineer change order is generated. What types of information are depicted by ECO?

Ans:

An ECO defines the change to be made, the constraints that must be respected, and the criteria for review andaudit. The change control process thus involves the following steps.

- need for change is recognized
- change request from user
- developer evaluates
- change report is generated
- change control authority (CCA) decides
- Either step 6a or 6b is performed. Steps numbers 7 to 17 are performed only if step 6b is performed.a)
  - change request is denied
  - user is informed
  - no further action is taken.
- b) assign people to SCIs
- check-out SCIs
- make the change
- review/audit the change
- check-in SCIs
- establish a "baseline" for testing
- perform SQA and testing activities
- check-in the changed SCIs
- promote SCI for inclusion in next release
- rebuild appropriate version
- review/audit the change
- include all changes in release

Thus, a change is incorporated in a controlled and strict manner.

17. we can ensure the 100% risk free software development process; can we guarantee that during the entiresoftware development process there will be no occurrence of any risk. Comment with the reason?

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Ans:
Let's be clear: there's no such thing as risk free software. You can't do anything without taking some risk. Butwhat's easy to overlook, is that not doing something is a risk, too.
Not fixing a bug runs the risk that its more serious than you thought; more prevalent than you thought; that it could happen to an important customer, someone in the press, or a highly valued customer – with real revenuerisk. You run the risk that it collides with another, as yet unknown bug, potentially multiplying the pain.
Sometimes not releasing feels like the safest thing to do – but you're releasing software because you knowsomething is wrong.
So what you going to do? No business wants to accept risk, you have to mitigate it somehow. The simple, easy and wrong thing to do is to add more process. The braver decision, the right decision, is to make it easy to undoany mistakes.

18. Why the "Large classes" and "Duplicate code" are considered as bad smell give at least one reason for each?

Ans:
Large classes try to do too much, which reduces cohesion.
If you modify one instance of duplicated code but not the others, you (may) have introduced a bug!

19. Is this correct that in the Reverse engineering we move from lower abstraction to the higher abstractionlevel?

Ans:
Yes, Reverse engineering for software is a process for analyzing a program in an effort to create arepresentation of the program at a higher level of abstraction than the source code

20. Formula for MTBF

Ans:
MTBF = MTTF + MTTR

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21. A student claims that requirement errors are most common type of software errors and are most costly tofix. Do you agree?

Ans:

Yes, Agree. Project success depends on good requirement management. It may be recalled that requirement errors are themost common type of software development errors and the costliest to fix. It may also be recalled that requirement errors are listed as one of the roots causes of software project failure.

22. Write down the format of the compound number normally used for release versioning

Ans:

Although there is no industry standard, typically, a three field compound number of the format "X.Y.Z" is used. The different fields communicate functionality information about the product release. The first digit, X, is used for the major release number which is used to identify a major increase in the product functionality. The second digit, Y, stands for feature release number. The feature release number is iterated to identify when aset of product features have been added or significantly modified from their originally documented behavior. The third digit, Z, is called the defect repair number and is incremented when a set of defects is repaired.

23. Differentiate between organizational maturity and process capability.

Ans:

Organizational maturity is the focus of the staged representation, whereas process area capability is the focus of the continuous representation. Organizational maturity and process area capability are similar concepts. The difference between them is thatorganizational maturity pertains to a set of process areas across an organization, while process area capabilitydeals with a set of processes relating to a single process area or specific practice.

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24. A chat messenger is released and its version is 1.0.0 .it only possess chat functionality now. after 1 year there are different major features are added like audio/video calls, files sharing and data sharing. now whatversion number this chat messenger possesses?

Ans:

After 1year version number will 2.0.0 Conventionally, a release number starts with a major number of one, followed by zero for its feature and maintenance numbers. This results in a release number 1.0.0. The first digit, X, is used for the major releasenumber which is used to identify a major increase in the product functionality. The major release number isusually incremented to indicate a significant change in the product functionality or a new product base-line.

25. Two parameter of legacy system?

Ans:

A legacy system can be accessed from two different perspectives – business value and quality.

26. Forward and reverse engineering?

Ans:

Reverse engineering for software is a process for analyzing a program in an effort to create a representation of the program at a higher level of abstraction than the source code Forward engineering requires application of SE principles, methods, and concepts to re-create an existingapplication.

27. Do u think that a long parameter list of function /method can bad smell?

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Ans:

Long Method

– Long methods are more difficult to understand; performance concerns with respect to lots of short methodsare largely obsolete.

Long Parameter List

– hard to understand, can become inconsistent

–

28. Occurrence of a software does not necessary result in a hazard or mishap do u agree or not

Ans:

Yes, agree. Reliability and safety are closely related. Software reliability uses statistical techniques to determine the likelihood that a software failure will occur. Occurrence of a software failure does not necessarily result in a hazard or mishap. On the other hand, software safety examines the ways in which failures result in conditionsthat can lead to a mishap.

29. Is it true Poka-Yoke technique deals with project planning?

Ans:

Poka-yoke is a Quality Assurance and Documentation technique. Poka-yoke devices are mechanisms that leadto prevention of potential quality problem before it occurs or the rapid detection of quality problems if they areintroduced

30. What are the appropriate situations to scrap a legacy system?

Ans:

This is the case when system is not making an effective contribution to business processes and business processes have changed significantly and the organization is no longer completely dependent upon the system.

31. Many times we tag requirements with certain attributes e.g., Requirement ID, requirement Status, list anytwo advantages of such tags.

Ans:

Attributes are used to establish a context and background for each requirement. They go beyond the descriptionof intended functionality. They can be used to filter, sort, or query to view selected subset of the requirements

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32. Write four reasons to migrate the legacy system

Ans:

- Scrap the system completely: This is the case when system is not making an effective contribution tobusiness processes and business processes have changed significantly and the organization is no longer completely dependent upon the system.
- Continue maintaining the system: This option is used when system is still required, it is stable, andrequirements are not changing frequently
- Transform the system in some way to improve its maintainability: this option is exercised when systemquality has been degraded and regular changes to the system are required.
- Replace the system with a new system: this path is taken when old system cannot continue in operation andoff-the shelf alternative is available or system can be developed at a reasonable cost.

33. what is SCI in respect to SCM?

Ans:

A Software Configuration Item (SCI) is the information that is created as part of the software engineeringprocess

34. what is software reliability?

Ans:

Software reliability is another very important quality factor and is defined as probability of failure free operation of a computer program in a specified environment for a specified time. For example, a program X can be estimated to have a reliability of 0.96 over 8 elapsed hours.

35. The SQA techniques are well or not for the development of software systems? give your comments to proveeither right or wrong?

Ans:

An SQA plan is developed for the project during project planning and is reviewed by all stake holders. The planincludes the identification of:

- Evaluations to be performed
- Audits and reviewed to be performed

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- Standards that are applicable to the project
- Procedures for error reporting and tracking
- Documents to be produced by the SQA group
- Amount of feedback provided to the software project team

The group participates in the development of the project's software process description. The software team selects the process and SQA group reviews the process description for compliance with the organizational policies, internal software standards, externally imposed standards, and other parts of the software project plan.

36. How deadline of a product influence quality and resources of product?

Ans:

Delivery deadline directly influences the resources and quality. With a realistic deadline, chances of delivering the product with high quality and reasonable resources increase tremendously as compared to an unrealistic deadline. So a project manager has to first determine a realistic and reasonable deadline and then monitor the project progress and ensure timely delivery.

37. What is the potential benefit of modifying the source code and data?

Ans:

We modify source code and data in order to make it amenable to future changes. This includes code as well as data restructuring. Code restructuring requires redesign with same function with higher quality than original program and data restructuring involves restructuring the database or the database schema. It may also involve code restructuring.

38. MTTF = 48, MTTR = 4, calculate availability?

Ans:

MTBF = MTTF + MTTR
= 48+4 =52

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Availability = (MTTF/MTBF) x 100

= (48/52) x 100 = 92.30

39. List the Steps of software re-engineering?

Ans:

Inventory analysis Document restructuringReverse Engineering Program Restructuring Data Restructuring Forward Engineering

40. Comment on the following statement regarding "review meeting" No review is better than an un-controlled review?

Ans:

An uncontrolled review can be worse than no review. The basic principle is that the review should focus on theproduct and not the producer so that it does not become personal. Remember to be sensitive to personal egos. Errors should be pointed out gently and the tone should be loose and constructive

41. Do you think that a long parameter list of a function/method can be a 'bad smell', give reasons to support your answer?

Ans:

Long Parameter List hard to understand, can become inconsistent

42. what is software refactoring?

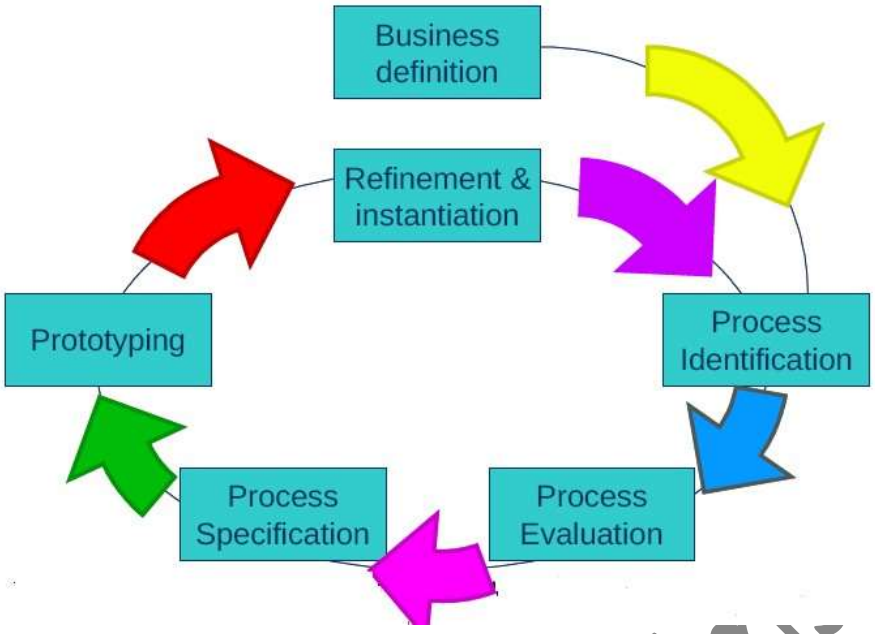
Ans:

Software refactoring is the process of changing a software system such that the external behavior of the system does not change while the internal structure of the system is improved. This is sometimes called –Improving the design after it has been written‖.

43. what are the step of BPR?

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